



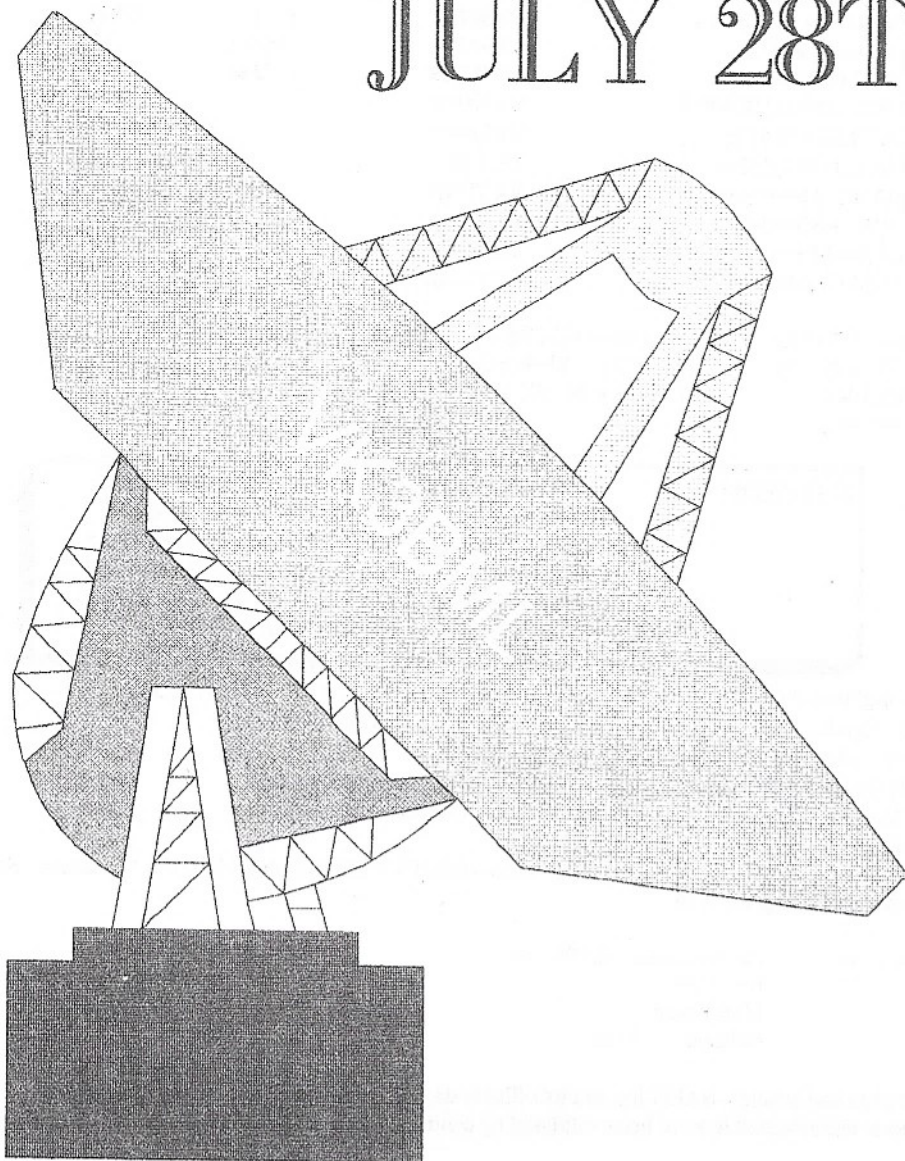
B.A.R.G. NEWS

JULY 1995 VOL 18 NO 6.

NEWSLETTER OF THE BALLARAT AMATEUR RADIO GROUP INC.

BEAM IN ON THE B.A.R.G. A.G.M.

JULY 28TH.



A NEW
SEASON
OF
SCRAMBLING
started on July 1st.

WHY NOT
join in the fun.

The five minutes of
mayhem starts at
7.50pm each Sunday
Evening between
146.250 & 146.600
IT'S GREAT MATE.

Ask Daryl VK3XDQ

95/07 2



BALLARAT AMATEUR RADIO GROUP INC.

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	GEORGE SMALL (VK3DKJ) SK	JIM WRIGHT (VK3CFB)		
	KEVIN HUGHES (VK3WN)	PHIL SEDDON (VK3AQM)		
	STAN WIDGERY (VK3SE)			

CLUB STATION

VK3 BML

REPEATERS

VK3RBA (Voice)	146.750 MHz.	- Mt.Buninyong.
VK3RBS (Voice)	146.900 MHz.	- Smeaton Hill
VK 3RPC (Packet)	144.750 MHz.	- Mt. Warrenheip.
VK3RBU (Voice)	438.475 MHz.	- Mt.Hollowback.
VK3RMB (Beacon)	432.535 MHz.	- Mt.Buninyong.
VK3RBV (ATV)	426.250 MHz.	- Ballarat

ACTIVITIES

CLUB NET: Thursday nights at 8 pm. (8.30 pm during Daylight Saving). Freq: 3.610 MHz +/- QRM.

2 METRE SCRAMBLE: Sunday Nights at 7.50 pm. Freq: 146.425 to 146.600 MHz. Inc.

Call back held on VK3RBA 146.750 MHz.

Logs monthly to D.Quirk - P.O. Box 78 - Newstead 3462 (or Meeting) to qualify.

MEETINGS: General Meeting : Last Friday of each month (except December) at 7.30 pm.

Natter Night : 2nd Friday of each month.

Venue: Ballarat Adult & Further Education Centre (BRACE) 602 Urquhart St. (Cnr. Windemere St.)

FOX HUNTING: As arranged during the year.

PLEASE ADDRESS ALL CORRESPONDENCE to:

The Secretary - BARG Inc.

Box 1261

Mail Centre

Ballarat 3354

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BATT - MAURIE (VK3XEX)

SILENT KEY

It is with deep regret that members of B.A.R.G. record the passing of Maurie VK3XEX, a life member of our group, and a diligent contributor to our activities over many years. We offer our deepest sympathy to Marjorie and family.

73 Maurie.



The President Reports

Bob - VK3BNC

Well - How time flies when you are having fun. Our Annual General Meeting is only days away and this is my last report to you for our 1994/5 year.

I have greatly enjoyed this year as President, being the third time that I have held this office. BARG has always been a strong club, it's strengths being: mutual help, providing user facilities, community involvement and strong promotion of amateur radio through our educational programs. The club has grown in its outlook by promoting most of the facets of our hobby whether it be repeaters, slow scan TV, packet radio, awards, upgrading licences, building gear, WICEN, satellites, nets, and those "come along and have a chat" forums.

I would like to pay tribute to your committee, which has had a few headaches this year, mainly our forced change of meeting venue which, I think you will agree, has been very acceptable, and the change of venue for the Hamfest, which has been made to give us greater undercover area and hopefully a higher public profile. We have had to address the unpopular issues of club finances and membership fees which always generates spirited debate, but the club has to remain solvent. To this end your committee has contributed tirelessly to make our group stronger and carry out your wishes. Attendance at Committee meetings has been good and enthusiastic. Thank you one and all.

This year Tom and Cliff head up our Hamfest sub-committee and so new ideas are going to be tried, and they will need plenty of help. I hope that you will hop in and make it easy for us all. There should be less manual work in setting up and less work for the ladies - more natter time!

Unfortunately, as you will all know by now, Maurie Batt VK3XEX became a silent key on Saturday 15th. July. Maurie was a life member of our club and our Awards Manager at the time of his passing. To Marj and family we extend our sincere sympathy.

In closing I would take this opportunity to wish the incoming committee all the best for the ensuing twelve months, and know that they will have your continuing support.

Thank you - Bob VK3BNC.



The Minutes

MINUTES OF BARG MEETING HELD 30TH.JUNE 1995



MEETING opened at 7.45 pm with President Bob VK3BNC welcoming all to the last General Meeting for 1994/5 and offering congratulations to our newest licensee VK3HWK. - Well done Wendy

APOLOGIES were accepted on behalf of the following VK3s : XEX, AEX, NIZ, DS, YMW, CUH, KIT, and Val. CAZ/DMK

MINUTES: for the previous meeting were confirmed as read, and the following business arising was discussed:

- ◊ Coax. Cable available at next meeting. - VK3AXH.
- ◊ Packet linking - Positive response - VK3BNC.
- ◊ Mallee Rally - VK3CCB
- ◊ Exam Dates - 17th. August. - VK3DCS
- ◊ Regs. Tutorial - 10th. August. - VK3AXH

DOK/HWK

TREASURER'S REPORT:

The following accounts were presented for payment.

Aust Post (Newsletter Postage)	\$ 48.55
John Graham (Newsletter Printing)	\$ 51.85
A.F.E.C. (Room Hire)	\$232.00

KGL/DMK

CORRESPONDENCE:

From: Amateur Radio
Hervey Bay R.C.
Mountain District R.C.
Geelong A.R.C.
I.A.R.S. Wollongong R.C.
Out: Ballarat Sth. Rotary Club re Hamvention.

DCS/CIS

HAMVENTION REPORT:

Proposed \$4.00 entry fee.
Co-Ordinators - VK3DMK, VK3CCB.
Catering Officer - Was declined.

DMK/CCB
DOK/CCB

TECHNICAL:

Re-Broadcast project to be re-activated. Written confirmation of verbal request to be sought from WIA
Packet SYSOP meeting in Geelong. VK3DMK to represent BARG. \$20.00 Petrol Voucher.
XDO/LBA
KQQ/AAP

GENERAL BUSINESS:

- ◊ "Aquinas Exposé" 5th. July VK3DCS & VK3FMC to represent BARG. DCS/FMC
- ◊ Room to be arranged for Revision Course for Call upgrades. CAZ/DCS
- ◊ 'Auslec' plugs - Some difficulties in application. CCB
- ◊ Further discussion on 'high speed packet link'. BNC
- ◊ More Packet Modem P.C. boards to be ordered. CAZ/DMK
- ◊ Packet Users Group to be established. CAZ to co-ordinate.
- ◊ Glowing reports from 'Electronics Night' in Beaufort.

A.G.M.

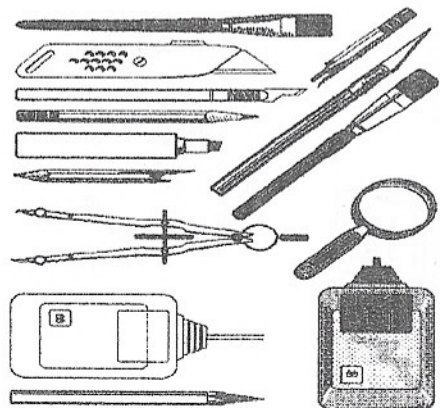
- ◊ Mary VK3FMC appointed 'Interim Secretary' during VK3ADB's absence. (Apologies tendered) HWK/XDQ
- ◊ Bud VK3AAP appointed Returning Officer for AGM XDQ/VBA
- ◊ Report on 'Sponsorship' proposal from Allan VK3NAS

MEETING CONCLUDED at 8.45 pm.

NEXT MEETING : The ANNUAL GENERAL MEETING on Friday July 28th.

Cheers - Have a great Month - Geoff VK3ADB.

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Reg's Shack



A Lazy Man's Timer.

I built one of the D.S.E. NiCad dischargers so that I could be sure that my handheld's battery pack was not over-discharged. It worked very well until I decided to check on the actual capacity of the battery pack in ampere-hours. With a known rate of discharge I had to keep "popping my head round the door" to see if the 'discharge LED' was still on, thus interrupting my other tasks. When I did see that it had extinguished I had to think how long it was since my last check, and pick a suitable "finish time" to compare with the "start time" in order to calculate the capacity of the battery pack.

There had to be an easier way, and eventually it dawned on me !

In the discharger circuit the LED has about 1.9 volts across it and is buffered by a 10uf electrolytic capacitor. Now 1.9 is not much greater than 1.5, so I tried putting one of those battery operated analogue clock movements in parallel with the LED (getting the polarity right). I increased the capacitor with a further 100uf at 4.7V (attached to the bottom of the PCB) to allow for the "pulse" current taken by the clock movement.

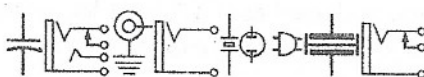
The extra current drain is negligible as I expected since a single AA cell will power one of the movements for about a year. To make a neat job of it I mounted a 3.5mm mono socket on the front panel (just enough room) and wired it across the LED.

A mono 3.5mm jack plug fed the clock movement although, since the battery contacts of the clock would not solder, I drilled holes and, using some fine nuts and bolts, mounted solder tags onto the battery connections.

The unit fitted neatly inside a plastic "cheese dip" container although I only fitted an hour hand, numbering the face from 0 to 11.

Now when the discharger cuts off the battery at "low volts" I can see how many hours it was discharging without calculation or worry

73 de Reg VK3CAZ.



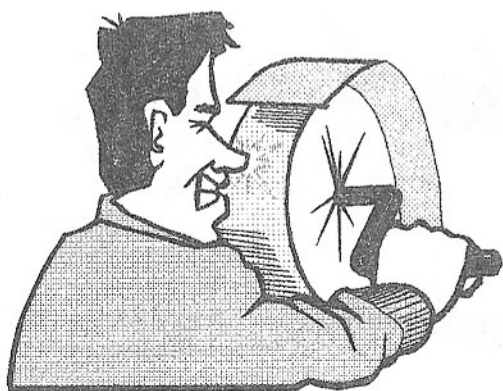
EXAMINATIONS: It is proposed to hold Examinations on the 17th August at the BRACE Complex. If you are interested in sitting any subjects please contact Charlie VK3DCS before the AGM on the 28th July.



CLUB NET: If you have any relevant news items or information that you would like to share with others in the Amateur fraternity, or if you have equipment for sale, give the details to Cliff VK3CCB in writing so that he can include it in the Thursday night Net broadcast. (Maybe send an extra copy for the Newsletter ? - Ed.)

UPGRADE COURSE: Interested in upgrading in the near future but need a little help with revision ? A series of Revision Nights will commence in September. Notify Charlie VK3DCS, Tom VK3DMK or Reg VK3CAZ if you are interested.

REGULATIONS TUTORIAL: Ian VK3AXH will be holding a night to study the Regs. in preparation for the Exams - 7.30 pm on 17th August at BRACE. Please notify if you intend to go along.



Y	O	M	J	E	H	I	E	M	P	T	L	O	F	S	Z	Y	X	H	U
S	O	S	J	S	P	G	S	F	G	A	S	G	R	A	B	U	X	L	Y
S	Q	H	C	J	D	C	E	S	A	B	D	P	D	W	X	U	H	N	F
X	C	D	M	I	S	B	W	R	D	C	Q	A	H	B	A	J	E	G	F
A	N	I	D	S	L	K	U	E	E	A	J	I	U	K	X	P	L	O	Y
G	W	A	L	V	R	L	W	W	R	H	C	G	V	Q	S	A	I	A	W
T	M	L	E	C	U	B	A	J	V	N	P	I	T	N	Y	G	C	V	B
Q	O	M	H	P	O	F	R	T	P	M	E	S	N	S	U	F	A	A	O
R	B	L	D	O	B	N	E	X	E	H	L	R	O	W	E	E	L	S	P
G	I	M	N	S	M	E	T	K	I	Y	L	N	C	N	D	K	T	F	Q
G	L	G	A	M	L	C	A	E	F	N	C	O	G	O	O	V	R	G	E
S	E	X	H	O	O	L	E	U	S	X	B	O	I	I	S	I	I	G	E
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E	X	L	Y	F	T	C	H	U	P	D	E	G	S	L	L	Y	O	M	D
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MOBILE
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 CALLSIGN
 QUAD
 HELICAL
 JPOLE
 DIODE
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 HANDHELD
 SWR
 OSCILLATE
 CONTEST
 REPEATER
 RELAY
 WICEN
 DUCTING
 SUNSPOTS
 IONOSPHERE
 PTT
 WERNER

THE MARVEL OF HONEYCOMB (WHO TAUGHT THE BEE MATHEMATICAL CALCULATIONS)

Have you ever wondered why a honeycomb is shaped as it is? First let us explore some simple geometry. Shapes like these are called polygons, that is they have three or more sides:



CONTRIBUTED BY
GEOFF - VK3ADB

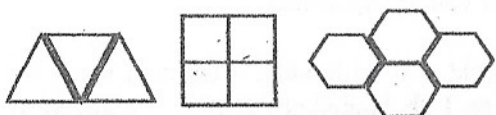
If all of their sides, and angles, are equal then they are said to be regular:



Shapes that fit together without leaving gaps or overlap are said to be tessellate. (eg - rectangles tessellate but circles don't.)



There are three regular polygons that tessellate: The equilateral triangle, the square and the regular hexagon.



So why did the bees choose a hexagon?

Maybe it is because for a given perimeter the regular hexagon has a greater area than either the square or the equilateral triangle and therefore it takes less beeswax to make a hexagonal prism that has the same volume as the alternative prisms, there are no sharp corners and of course it suits their body shape.



Another Great Idea From Brian.



A VERSATILE LOAD FOR POWER SUPPLIES

Here is a useful load resistor for checking power transformers and power supplies. It is made from an old style Mica element from an iron or a toaster.

The element is tapped at points along its length, selected to give a current of 2 amperes at 13.8 volts between each tapped section.

First connect the end of the conductor with a screw as per Fig.2, then apply voltage between this point and a point on the element, and move the point until 2 amperes is indicated as in Fig.3. Fit another screw to this point by drilling the Mica and fitting the screw as in Fig.2. Use this tapping to locate the next 2 ampere tapping, and so on until five sections have been selected and the sixth screw fitted.

Switches S1 to S6 are SPST CENTRE OFF toggle switches and are connected as shown in Fig.1. Using the switches in a combination of - UP, CENTRE or DOWN positions will give a variation of current between 0.4 amperes and 10.0 amperes (eg. S1 UP - S2 CENTRE - S3 DOWN and S4, S5, and S6 all CENTRE will produce 1 ampere of current flow.).

The meter used is a 10 Ampere Moving Iron type which will read either DC or low frequency AC so the terminals are not polarised and the meter will show the current selected so no calibration markings are required. Just switch until the desired current is indicated.

There can be no combination of switch positions to cause a short circuit or overload the meter. Some heating of the element will occur which can change its resistance and therefore the current flow with prolonged use. When housing the element it is necessary to provide for adequate air circulation.

73 de Brian VK3KQB.

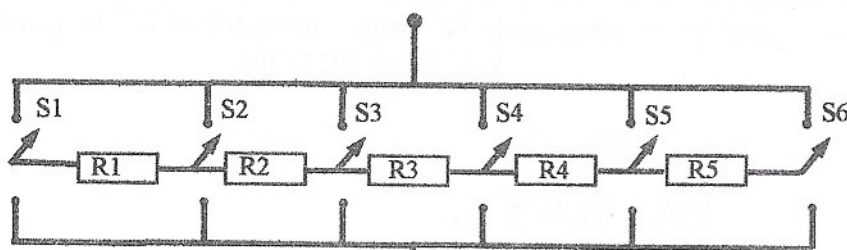


FIG. 1.

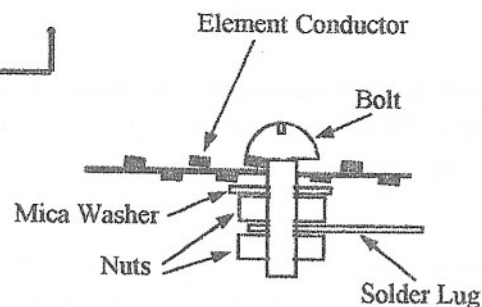
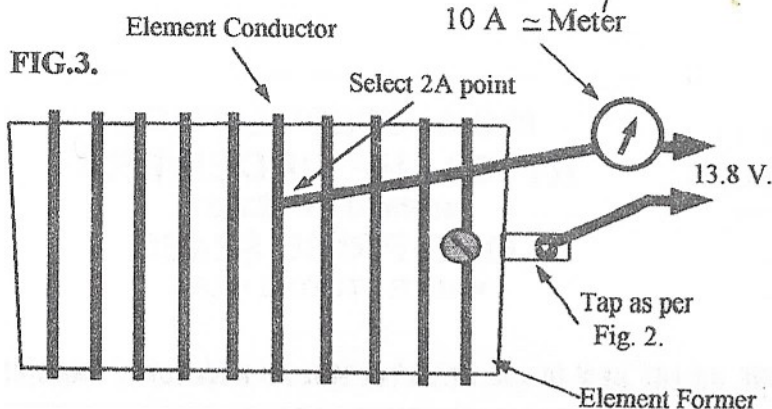


FIG. 2.

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Reports



SCRAMBLE RESULTS 1994/5

A big thank you to all that gave a point or two during this years events.

The number of participants on each scramble fluctuated some-what during the year, some weeks there were 10 to 12 trying their luck, whilst on others there were only 4 or 5 of the stalwarts.

Why not 'have a go' one Sunday night and join in the fun ?

This years results are as follows: Champion - Doug VK3KAY - 273 points.

Runner Up - Reg. VK3CAZ - 207 points.

"Earth Stake Award" - Ian VK3CIS - 54 points.

73 de Daryl VK3XDQ



SPECIAL EVENT

The club was recently invited to participate in the RETIREMENT & LEISURE CHALLENGE EXPO. & FORUM conducted at Aquinas College.

Charlie VK3DCS organised a display of QSL cards, and with the help of Norm VK3LBA, some information in the form of a hand-out pamphlet related to BARG and Amateur Radio activities.

Dick VK3LDC assisted Charlie, while Mary VK3FMC enjoyed the various activities - especially the croquet ! The display created a lot of interest and numerous enquiries were received.

73 de Mary VK3FMC.



QSL CARDS

The number of QSL cards handled during the last quarter apparently reflects the propagation situation on the bands. Outward movements accounted for 65 cards while 113 cards were received for the quarter.

73 de Doug VK3VBA



PACKET

If you are just starting out on packet you are advised to contact a current packet user and ask to have Ken at VK3FBB informed of your intention, so that your callsign will be recognised for connection to the system.



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WHILE STOCKS LAST.

95/07 09

ATV - It repeats on you !!!

BEN VKTOP continues his tales of the evolving VK3RBV



What's a nice guy like me doing, hanging by my trusty (but frayed) harness, about 60 feet up a tower? Read on brave souls and find out how your ATV repeater started its humble life.

"Let's build a repeater" said Stan. "Yeah! can't be all that hard" said I. After all, I thought, all we have to do is plug a received video signal into the transmitter. Only one lead required (two if you want sound), can't be all that hard!

So that's literally is how it all started. Stan transmitted a picture to me on 426. I had a wrecked (carefully) video tuner that gave us composite video out, this was then fed into my 444 transmitter simple!

HAH! == NOT VERY *@#**&>#@#@* LIKELY !!!!

The transmitted picture was a mess, for the simple reason that as soon as the transmitter was turned on it got into the receiver - big time! So out with the filters, one on each RX and TX. That helped the repeater a bit, but Stan was still complaining that he was getting RUBBISH!

Seems that he was using a pre-amp on his down converter, not only that, but we reasoned that Stan would have the same problems as the repeater, re getting into himself. Dispensing with the pre-amp really made a big difference - in fact too much difference (it was too good now) - so what was the difference? Stan had his antennas separated by about 20 feet, the repeater had only 2 feet!

So there I was hanging by the harness, antenna in one hand, spanner in the other, 60 feet up John Lewis' (VK3HW) tower. 40 feet below me was the TX antenna with different polarisation than the one that I was working on. The result? It was just average. It was repeating, but the quality was really well just average. No real contrast, just flashing colour with the odd 'tear' and 'roll'.

About then John told us he was moving, and therefore so must we. So it all came back to the Engineering Dept. and the results were similar ... drab!

We concluded that inband was killing us - so up we went to the wonderful world of 1296.

The VK5 kit arrived, and many many, many, many days were spent on working out the bugs, Some were our fault, some weren't. Finally a stable picture was produced and using my AUSAT receiver some brilliant results were obtained. It is really amazing, the quality of the FM signal. This time it was really a simple matter of hooking the output to the input, and what do you know? - Ballarat has an ATV repeater.

The quality was excellent, even good colour, and very stable pre-amps are now allowed, and no funny filters are needed. We actually discovered that the filters were clipping the video signal, simply because they were not broad enough.

The big moment occurred at 17.15 on 23/2/95. (Some 41/2 years after it was first suggested.)

It has been shortened down in this story, but suffice to say we didn't take a break for 4 years, while we may not have worked on it every day, certainly every week saw some 'new development' occur.

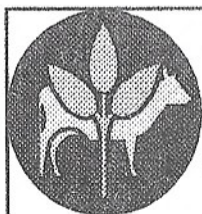
I must give Stan the credit for keeping me (us) going on the project, as many a time I questioned my own sanity. But looking back it's been great to achieve a defined goal, and we're both much more versed on video and RF.

As I write this (20/7/95) the repeater is off air, as it goes through a major rebuild and clean up, as it is being boxed up in readiness for its move up onto the roof. Hopefully, by the time you read this it will be installed and giving good signal strengths all around the greater Ballarat area.

So 'til then, get busy building those 426 MHz vertical Yagis and we'll see you on ATV

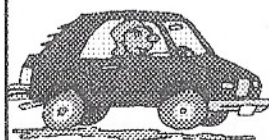
73 de Ben VK3TOP.

95/07 10



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73 de Bill VK3PH



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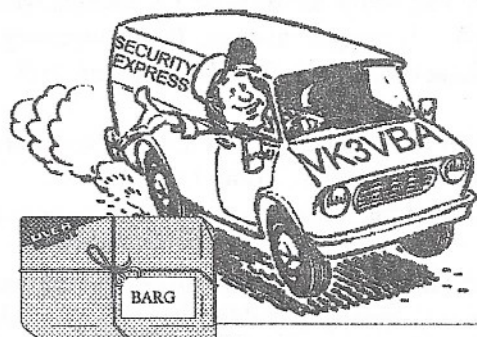
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FAX 78 5148

OR CONTACT
BALLARAT AGENT
IAN LEISHMAN
018 503682

or

DOUG RAPER VK3VBA
015-368922

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HOW MUCH DO YOU KNOW ABOUT SMOKE



An Exposé dealing with
misconceptions which
surround the physics of
'electronic' SMOKING.



SMOKE - Q and A.

When wires smoke, how come the smoke is not the same colour as the wire ?

This is not completely true. When the smoke is in the wire, it is under pressure (called voltage). The pressure difference causes the colour to change from the normal colour we are used to. Not unlike the blood in our veins and arteries changing colour due to the oxygen content. When the smoke escapes the wire and is exposed to the air the pressure is released and the colour reverts back to what we commonly recognise as smoke. The wire then changes to the colour of the smoke that escaped. I hope that this helps you to understand.

I would only question the last sentence of that description. It has been my experience that the wire turns to a colour directly opposite that of the smoke.

Not always true. I think that it must depend on the composition of the smoke in question.

I should have made it a little clearer. The colour the wire becomes is directly proportional to the escape velocity of the smoke. Higher velocities generate higher heat. This heat tends to burn the wire and affect the colouring. The statement was meant as a generalisation indicating the fact that the colour of the wire does in fact change. Sorry for the miscommunication.

I was speaking of electrical smoke, which is generally white. The spent smoke casing generally assumes a colour somewhat near black after the smoke leaves.

I can't understand it anymore ! If as you say - " light bulbs suck up darkness and convert it to smoke

which is transmitted (via wire) to a power source for re-cycling" - why do car batteries go dead when the lights are left on. ? Do car batteries (and flashlight batteries too, for that matter) have a limited amount of storage capacity ? Is it like a hard drive that gets so full that you have to double space and then lose all of the data ?

Now you're getting the hang of it !

I thought you guys were smarter than this. Of course the battery stores the smoke . In fact it can store so much smoke that if you open the top and light a match, the resulting explosion can do

serious damage. If you connect the battery to a battery charger the smoke is then returned to the wire (remember, a light bulb won't work unless it is connected to a wire system) for the utility companies to use.

Since there is a spectrum of light that we, as humans, cannot see, I support the theory that everything is going up in smoke, but we just can't see it.

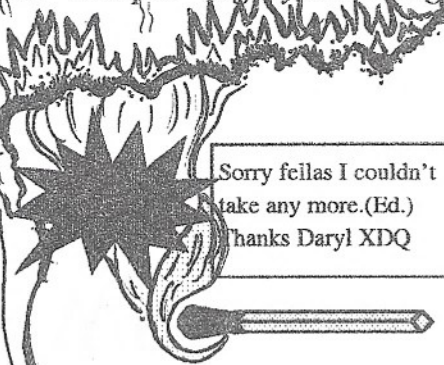
This may explain why the neighbour's dog barks for no apparent reason.

I think your basic understanding of smoke systems is remarkable. However I find a flaw with your theory. The battery is a reusable storage device for smoke, therefore one would assume that some sort of one way valve (we call it a diode) should be needed to prevent pressure flooding back into the system while at rest. Unlike the A/C system the smoke system is collecting darkness at the headlights and converting it to smoke. This causes the system to fill up. The battery can contain much higher pressures and volumes than the wires. If this pressure exceeds the capacity of the wire it will cause a rupture as you described. The rupture can be

controlled by a sacrificial device known as a "fuse". But this still doesn't eliminate the problem. Perhaps a two-way valve (Zener diode) is used to allow a small amount of pressure to return to the system, and partially equalise. I find this theory unlikely though, due to the increase in the force required to start the pump (which is now under pressure) working again...

The smoke only escapes wires when a path is created between the pressure differential areas at either the reservoir or the pump. that has too little restriction. When this happens the smoke travels through the wires so fast that the friction between the smoke and the outer walls of the wiring, heats the wires until they rupture. The smoke continues to escape until the pressure is equalised by the atmosphere or until the conduit that provides the path between the pressure areas is severed.

When this happens the sudden drop in pressure allows the wires to "collapse" slightly and being



Sorry feillas I couldn't
take any more.(Ed.)
Thanks Daryl XDQ

SMOKE IS A WEALTH HAZARD



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COMING EVENTS AND INFORMATION

19th. July - Committee Meeting
28th. July - BARG ANNUAL MEETING.
11th. August - Natter Night.
12th. / 13th. August - Remembrance Day Contest.
Monday Nights - Practical Nights.
2M Scramble - Sunday Nights 7.50pm 146.425 to 146.600 Mhz.
Club Net - Thursday Nights 8pm. 3.610 +/- QRM
21st./22nd. October - JOTA weekend.
28th./29th. October - BARG Hamvention - Ballarat Showgrounds.



B.A.R.G.

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WITH LOCAL & INTERNATIONAL RADIO COMMUNICATIONS ON AN AMATEUR BASIS.

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